Humanitarian aid to Africa

By Marnah Woken
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The U.S. European Command (USEUCOM) and the U.S. Embassy in Mauritania, Africa recently asked the Corps of Engineers to provide a public health engineering assessment of Nouakchott, Mauritania — a severely impoverished African city.

The city's annual August to September rainy season floods the El Mina Quarter of Nouakchott, causing standing water to mix with raw sewage. This standing water contaminates the limited drinking water in the area, resulting in cholera and malaria outbreaks.

These problems have also magnified due to the area's rapid over population and geographical conditions.

Europe District Environmental Engineers Peter Russin and Pat Brady went to Nouakchott to assess and evaluate the situation and to propose corrective measures to combat the threat to public health in the El Mina Quarter.

They conducted a two-week study and site-analysis — identifying three major life and safety health problems in the area.

"Basically, EUCOM requested a team to go down there to try to come up with a solution to improve the quality of living," said Russin. "This was done as part of Europe District's Outreach Program.

"This is a highly populated area. People are migrating from the desert to the city, looking for work. The population is at the point where the quality of living is starting to deteriorate as these people adjust to living in an urban area."

A typical water transportation system in Nouakchott is pictured above. (Photo by Europe District)

Europe District Environmental Engineer Peter Russin surveys the high groundwater at El Mina. (Photo by Europe District)

The main problems found in the assessment include a lack of clean drinking water, poor sewage handling and the disposal of domestic and solid waste products.

"Uncontrolled solid waste refuse litters virtually the entire El Mina Quarter," said Brady. "There is a visible lack of garbage cans, dumpsters, and other means of controlling and transporting the waste to an intermediary pick up point, so the waste piles lie in the open, year round."

The area also suffers from a total lack of natural drainage, according to Russin. This, combined with the accumulation and pooling of used water, spent kitchen water and sewage, creates a serious public health condition.

"There is a serious drainage issue in the area," said Russin. "However, the magnitude of trying to resolve the drainage issue is a big project. All you can really do at this point is try to control and handle the

solid and domestic waste that mingles with the drinking water. In a sense, there's nothing that can be done about the drainage problem unless you spend millions of dollars. We concluded that if we could control the existing solid and domestic waste lying on the ground, it would help a great deal."

"If we can get rid of the existing waste, the heavy rainfall won't cause as many sanitation problems," he added. "Obviously, there will be some ponding, but it won't be in proximity of the solid waste."

Nouakchott's existing water supply, storage, and transmission systems are also seriously inadequate. In addition, further water production is expected to decrease in the future, meeting only 70 percent of the city's demand.

"The water lines aren't buried deeply enough and in some cases lack acceptable backfill material," said Brady. "Frequent failure of lines and joints, coupled with low operating hydrostatic pressure have severely compromised the water quality in the lines."

"In effect, the water lines themselves provide an excellent conduit for waterborne diseases," he added. "In addition, open well dispensing points are vulnerable to direct human and animal contamination and provide an excellent breeding ground for mosquitoes during both the dry and rainy seasons."

In their final assessment, Brady and Russin offered suggestions on how to solve the problems that pose an extreme health hazard to the community.

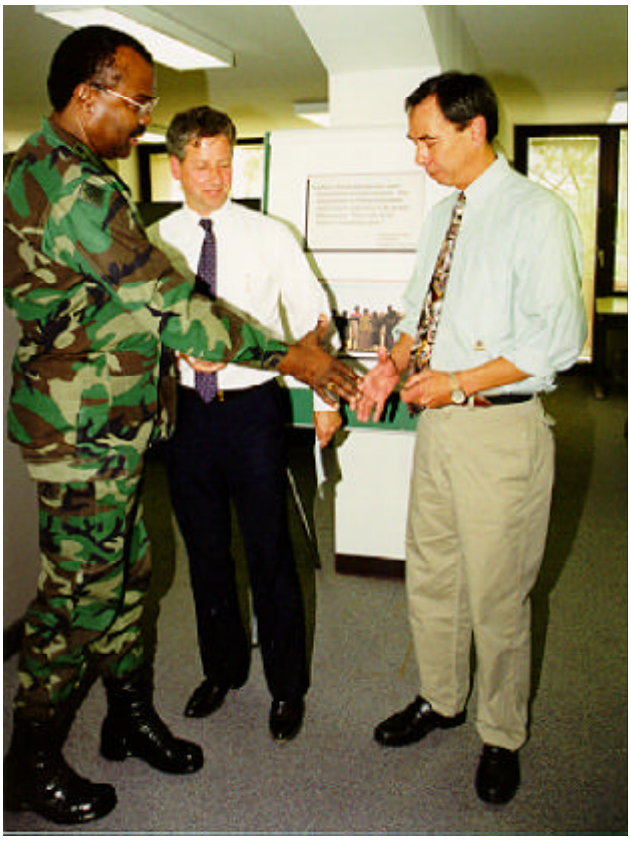
"We looked at it from a realistic point of view and said 'What can we do to improve the quality of living for this community with the dollars that we have.'"

"Basically, we provided an outline in terms of doing an initial cleanup of the area, and disinfection of the solid waste areas," said Russin. "Currently, there's a procurement going through the State Department for the cleanup, and the implementation of a solid waste management plan that will control, handle and dispose of the solid waste."

Both Russin and Brady feel this assessment and the subsequent cleanup efforts may serve as a pilot program for other impoverished African cities.

"This is something that can be duplicated in other impoverished communities," said Russin. "I think once everyone begins to see the results of these efforts, it will be replicated in other areas, ultimately helping the people who live in these impoverished areas."

Russin added the people living in these areas are eager for assistance — an eagerness which shows in their facial expressions.



Chief of Engineers, Lt. Gen. Joe Ballard presents coins to Europe District Environmental Engineers Peter Russin (pictured left) and Pat Brady. (Photo by Marnah Woken)

"The people there are impoverished but you really don't see it in their faces," said Russin. "I think they know that you're there to help and they get their hopes up. They're very friendly — very interested in newcomers — and very interested in what's going on."

"They were extremely thankful for the smallest things including the candy we gave them," added Russin. "It really shows that they don't need a lot of material goods to be happy because they have so little — it shows they can be happy anywhere."